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Case Docket No. CHR 2001-79 (reissue)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: L. H. Hiltzik, J. Z. Jagiello, E. D. Tolles, R. S. Williams

Serial No.: (to be assigned) Group Art Unit: 1724

Filed: October 21, 2003

For: METHOD FOR REDUCING EMISSIONS FROM EVAPORATIVE EMISSION CONTROL SYSTEMS

Examiner: (to be designated)

Customer No.: **36876**

Commissioner of Patents
P. O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

In accordance with 37 C.F.R. 1.56, applicant wishes to call the attention of the Examiner to the following references:

U.S. PATENT NO.	PATENTEE	ISSUE DATE
4,677,086	McCue et al.	06/30/87
4,869,739	Kanome et al.	09/26/89
4,894,072	Turner et al.	01/16/90
5,204,310	Tolles et al.	04/20/93
5,206,207	Tolles	04/27/93
5,207,808	Haruta et al.	05/04/93
5,238,470	Tolles et al.	08/24/93
5,250,491	Yan	10/05/93
5,276,000	Matthews et al.	01/04/94
5,304,527	Dimitri	04/19/94

U.S. PATENT NO.	PATENTEE	ISSUE DATE
5,324,703	McCue et al.	06/28/94
5,337,721	Kasuyu et al.	08/16/94
5,355,861	Arai	10/18/94
5,377,644	Krohm	01/03/95
5,408,976	Reddy	04/25/95
5,416,056	Baker	05/16/95
5,456,236	Wakashiro et al.	10/10/95
5,456,237	Yamazaki et al.	10/10/95
5,460,136	Yamazaki et al.	10/24/95
5,477,836	Hyodo et al.	12/26/95
5,482,023	Hunt et al.	01/09/96
5,538,932	Yan et al.	07/23/96
5,564,398	Maeda et al.	10/15/96
5,687,697	Ishikawa	11/18/97
5,691,270	Miller	11/25/97
5,736,481	Miller	04/07/98
5,736,485	Miller	04/07/98
5,863,858	Miller et al.	01/26/99
5,914,294	Park et al.	06/22/99
5,914,457	Itakura et al.	06/22/99
5,931,141	Chino	08/03/99
5,957,114	Johnson et al.	09/28/99
6,098,601	Reddy	08/08/00
6,136,075	Bragg et al.	10/24/00
6,171,373	Park et al.	01/09/01
6,279,548	Reddy	08/28/01
6,284,705	Park et al.	09/04/01
6,488,748	Yamafuji et al.	12/03/02

OTHER DOCUMENTS

Williams, R. S. and C. R. Clontz. "Impact and Control of Canister Bleed Emissions" Covington, Virginia, *Society of Automotive Engineers, Inc. 2001.*

International Publication No. WO 92/01585, (Tennison, Stephen Robert et al.) "Apparatus and Process For Vapour Recovery," Publication date February 6, 1992.

Japanese Publication No. 10-339218, (Nakano, Masaru et al.) "Treatment Device Of Evaporative Fuel," Publication date December 22, 1998.

European Publication No. EP 1 094 032, (Uchino, Massachi et al.) "Formed Active Carbon and Process For Producing The Same," Publication Date April 25, 2001.

European Patent Application EP 1 113 163, (Uchino, Massahi et al.) "Fuel Vapor Treatment Canister," Publication date July 4, 2001.

International Publication No. WO 01/62367, (MacDowall, James Duff et al.) "Process For The Adsorption Of Organic Vapours From Gas Mixtures Containing Them," Publication date August 30, 2001.

Korean Publication No. KR 2002 012826, (OH, W.S.) "Diurnal Breathing Loss Control Canister Module System and Constructing Method Thereof," Publication Date February 20, 2002.

Japanese Publication No. 2002-256989 (Katsuhiko, Makino et al.) "Canister" Publication Date 11/9/02.

Copies of these references are submitted herewith along with form PTO-1449.

These references are cited as being representative of the state of the art in this area. All the above cited art have been previously addressed in the earlier prosecution of the U.S. Patent No. 6,540,815 except the following, which are individually addressed as follows:

U.S. Patent No. 4,869,739 to Kanome et al. teaches a fuel vapor collecting device comprising: an activated carbon receiving chamber and activated carbon particles contained in the activated carbon receiving chamber, each of the activated carbon particles containing heat accumulating solid fillers distributed therein and having a specific heat which is larger than that of an activated carbon. The patentees provide no disclosure or suggestion of separate beds of activated carbon adsorbents of differing activities. The applicants claim no "accumulating solid fillers" distributed within their activated carbon adsorbent particles.

U.S. Patent No. 5,238,470 to Tolles et al. teach the chemical activation of a carbonaceous material, preferably lignocellulosic material, with a chemical activation agent in a manner to produce a plastic intermediate product which is densified to effectively minimize the macropore structure of the activated carbonaceous material. Densification is followed by increasing the temperature of the shaped product at a controlled rate to from about 425° C. to about 650° C. The patentees teach their product to be a "high activity, high density gas-phase activated carbons produced are characterized by butane working capacities from above 15 to about g/100 cm^3, but do not even suggest its use in an auto canister in conjunction with an activated carbon of reduced activation.

U.S. Patent No. 5,355,861 to Arai teaches an evaporative emission control system including a canister having an adsorbent accommodating chamber for accommodating an adsorbent therein, said canister includes: a vapor-liquid separation chamber formed in said canister; a liquefaction accelerating agent which is fibrous or long strip-shaped and filled in an upper portion of said vapor-liquid separation chamber; a fuel storage chamber disposed in a lower portion of said vapor-liquid separation chamber for storing a separated liquid fuel; and said vapor-liquid separation chamber communicating with said adsorbent accommodating chamber. The patent disclosure does not teach or suggest the applicants' claimed invention.

U.S. Patent No. 5,377,644 to Krohm teaches both method and apparatus for collecting and metering volatile fuel components for an engine, including a container with a regenerable storage device for collecting volatile fuel components from the fuel store. The storage device is connected to the engine fuel inlet through a metering valve, which is controlled to supply the previously collected components to optimize engine performance by a controlled feed of the volatile components into the fuel mixture according to the particular engine operating conditions. There is no suggestion by the patentee's disclosure of the applicants' claimed invention.

U.S. Patent No. 5,482,023 to Hunt et al. teaches a cold start fuel control system including a fuel vapor canister having an interior chamber filled with fuel absorbent material. This internal chamber of the canister is fluidly connected to the fuel tank. Additionally, a normally closed shut-off valve is fluidly connected between the canister and ambient air while a normally closed purge valve is fluidly connected in between the interior of the canister and the intake manifold. There ends the similarity to the applicants' claimed invention.

U.S. Patent No. 5,687,697 to Ishikawa teaches an apparatus for treating fuel vapor generated in a fuel tank of a vehicle is provided. The apparatus comprises a canister having a vapor inlet communicating with the tank, a vapor outlet communicating with the engine's air intake passage by way of a purge line, and an adsorbent. The adsorbent is taught to be "activated carbon or the like." In the disclosed configuration the canister is heated and the temperature of the adsorbent raised. This permits more efficient separation of the volatile compounds for separation from the exhausting gases. Although in system with two tailpipes it is suggested to provide separate canisters for each tailpipe, there is no suggestion of differing activations of adsorbents within the same canister. Thus, there is no suggestion of the applicants' claimed invention.

U.S. Patent No. 5,931,141 to Chino teaches a vapor treatment system incorporated with an automotive fuel storage tank for a gasoline. The vapor treatment system comprises a vapor adsorbent canister containing therein vapor adsorbent. The vapor adsorbent is taught to be "an inorganic vapor adsorbent such as activated carbon or ceramic, or organic vapor adsorbent such as high polymer vapor adsorbent. The vapor adsorbent S is granular, massive or honeycomb-shaped." (Of course, activated carbon is organic, not "inorganic.") Nevertheless, there is no teaching of a vapor adsorbent canister containing vapor adsorbents of differing activities.

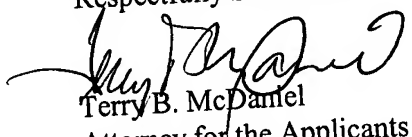
EP 1094032 to Tennex Corp. teaches a formed activated carbon for a fuel vapor collecting device made by kneading activated powder with clay, a metal powder and/or a metal oxide powder, and a boron compound and/or a phosphorus compound, forming the mixture and firing the green body. This does teaching does not suggest the applicants' claimed invention.

JP 10339218 to Tennex Corp. teaches technology similar to EP 1094032 to Tennex (see above) with an aim to improve fuel adhesive and withdrawal performance. The adsorbent in a evaporative fuel device (canister) is taught to be active carbons produced by adhering heat accumulating particles comprising a metal or an inorganic material which has a higher heat transfer coefficient compared with activated carbon and a high heat capacity. When the heated evaporative fuel is adsorbed by the activated carbon, the heat generated is transferred to the heat accumulating particles so that the temperature rise of the activated carbon is suppressed. By suppressing the temperature rise of the activated carbon, when the adsorbed compounds are withdrawn by introducing air upon engine operation, a temperature decline of the activated carbons at such withdrawal time is also minimized, as the heat reduction occurs primarily in the heat accumulating particles.

JP 02256989 to Aisan Industries deals more directly with the problem addressed by the instant inventors/applicants in minimizing the diffusion phenomenon within the adsorbent material within a canister as an element within an automotive evaporative emission control system. The applicants of the Japanese published application provide, within the canister, a first layer of an activated carbon having a high adsorption and weak holding force and a second layer of an activated carbon having a middle adsorption and weak holding force, thereby having little remaining fuel after purging; thus, suppressing radiation of evaporated fuel to the atmosphere after leaving the canister under a high temperature. The canister configuration appears similar to that claimed by applicants, but the mechanism for reduced diurnal bleeding is not taught to be the same. The applicants' high activity carbon possess a relatively high holding force, and the suppression of diurnal bleeding of the evaporated volatile compounds results from the metering effect of the transference of said compounds from the high activity carbon to the lower activity carbon, before subsequent release to the atmosphere. Regardless of relevance or materiality, however, it is respectfully submitted that this reference document is removed as available prior art in denying the applicants' petition for patent by the attached Declaration Under 37 C.F.R. 131(a).

As a matter of fact, none of the above citations constitute an admission that the references are relevant or material to the claims; they are cited only as constituting the closest art of which the applicant is aware.

Respectfully Submitted,



Terry B. McDaniel
Attorney for the Applicants
Registration No. 28,444

Attachments

Dated: October 21, 2003
5255 Virginia Avenue
Post Office Box 118005
Charleston, SC 29423-8005
Tel: (843) 740-2311
Fax: (843) 746-8494

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INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

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	1725

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		4 6 7 7 0 8 6	06/87	McCue et al.			
		4 8 6 9 7 3 9	09/89	Kanome et al.			
		4 8 9 4 0 7 2	01/90	Turner et al.			
		5 2 0 4 3 1 0	04/93	Tolles et al.			
		5 2 0 6 2 0 7	04/93	Tolles			
		5 2 0 7 8 0 8	05/93	Haruta et al.			
		5 2 3 8 4 7 0	08/93	Tolles et al.			
		5 2 5 0 4 9 1	10/93	Yan			
		5 2 7 6 0 0 0	01/94	Matthews et al.			
		5 3 0 4 5 2 7	04/94	Dimitri			
		5 3 2 4 7 0 3	06/94	McCue et al.			
		5 3 3 7 7 2 1	08/94	Kasuyu et al.			
		5 3 5 5 8 6 1	10/94	Arai			
		5 3 7 7 6 4 4	01/95	Krohm			
		5 4 0 8 9 7 6	04/95	Reddy			
		5 4 1 6 0 5 6	05/95	Baker			
		5 4 5 6 2 3 6	10/95	Wakashiro et al.			
		5 4 5 6 2 3 7	10/95	Yamazaki et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
		WO 92 0 1 5 8 5	02/92	PCT Publication				
		JP 103 3 9 2 1 8	12/98	Japanese Publication				
		EP 11 1 3 1 6 3	07/01	European Patent Office Publication				
		WO 01 6 2 3 6 7	08/01	PCT Publication				
		KR 0 1 2 8 2 6	02/02	Korean Publication				
		EP 10 9 4 0 3 2	04/01	European Patent Office Publication				
		JP 022 5 6 9 8 9	11/02	Japanese Publication			X	

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

Williams, R. S. and C. R. Clontz "Impact and Control of Canister Bleed Emissions" Covington Virginia, *Society of Automotive Engineers, Inc.* 2001

EXAMINER

DATE CONSIDERED

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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		5,460,136	10/95	Yamazaki et al.			
		5,477,836	12/95	Hyodo et al.			
		5,482,023	01/96	Hunt et al.			
		5,553,892	07/96	Yan et al.			
		5,563,964	10/96	Maeda et al.			
		5,687,697	11/97	Ishikawa			
		5,691,270	11/97	Miller			
		5,736,481	04/98	Miller			
		5,736,485	04/98	Miller			
		5,863,858	01/99	Miller et al.			
		5,914,294	06/99	Park et al.			
		5,914,457	06/99	Itakura et al.			
		5,931,711	08/99	Chino			
		5,955,711	09/99	Johnson et al.			
		6,090,860	08/00	Reddy			
		6,136,075	10/00	Bragg et al.			
		6,171,373	01/01	Park et al.			
		6,274,540	08/01	Reddy			
		6,284,704	09/01	Park et al.			
		6,482,748	12/02	Yamafuji et al.			

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